

REMARKS

Reconsideration and removal of the grounds for rejection is respectfully requested.

Claims 1-11 have been cancelled, claims 12-14 were withdrawn, and new claims 15-21 have been added.

The examiner rejected claims 8, 9 and 11 as being indefinite. This rejection has been rendered moot by the cancellation of claims 8, 9 and 11. However, the examiners comments have been taken into consideration in the preparation of new claims 15-21.

Claims 8, 9 and 11 were rejected as being obvious over Sheu et al, U.S. patent no. 6,295, 770.

The applicants invention seeks to solve a serious problem; how to provide better earthquake resistance to existing reinforced concrete building structures, without disturbing the building itself or the occupants. There are many ways to build-in earthquake resistant design features when a new building is to be constructed, it is quite another to take a building that is many years old, and occupied, and increase its' earthquake resistance.

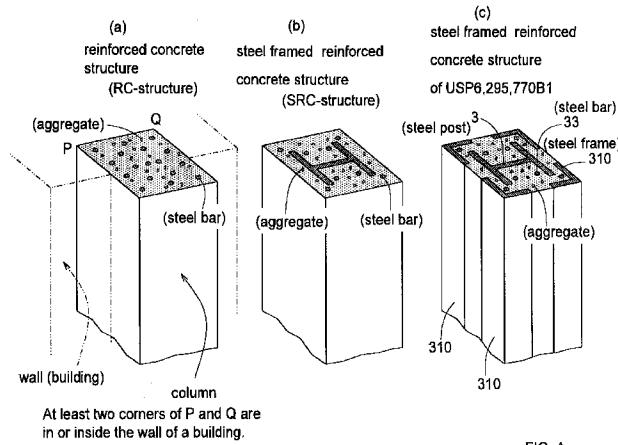
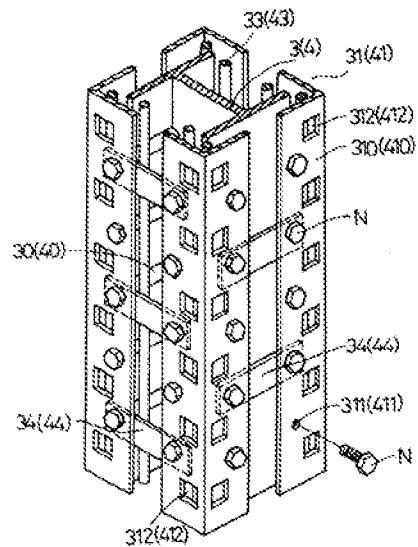
The applicants achieve this goal by adding reinforcement only along the exterior of a building, by providing a steel frame made of wide flange section steel columns and beams, assembled in proximity to an exterior of the building structure. The columns and beams of the steel frame are connected to the existing concrete reinforced columns and beams, without the use of bracing that could block the window openings. All work being performed on the exterior allows the building to remain occupied during assembly, and the absence of bracing maintains a semblance of the original building aesthetics.

The examiners' reliance on Sheu to reject these claims is misplaced. Sheu describes a method for reinforcing a structure during the initial construction of a building:

The main feature of the invention includes steel frame structures consisting of steel posts and steel beams and plural connect members fixed on the steel posts and the steel beams. It includes the plural auxiliary structures

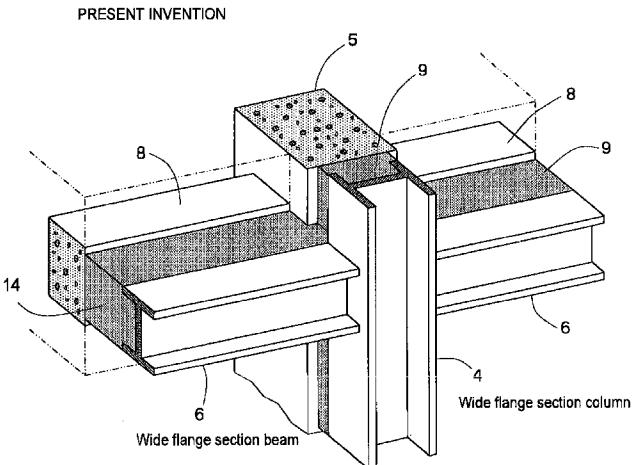
surrounding each corner of each steel post and each steel beam and consisting of support frame channels and reinforcing steel bars. Some support frame-channels have flow holes for concrete in their surfaces. It further includes floor steel structures laid on the upper surfaces of the steel beams and consisting of floor plates and steel bar nets crossing each other. Plural connectors are also included, connected with the steel posts and the steel beams, having threaded holes in a side to combine with the connect members of the steel beams. The wall structure is connected with the connect members of the steel beams with the connectors. Further, holed plates are fixed to surround steel structures of the steel frame structure, used as substitutes of concrete forms. (Col. 2, l. 34-52, emphasis added)

Figure 3 is illustrative, showing how a column is surrounded by steel bars and plates, before the concrete is poured to create a concrete reinforced column or beam. It is difficult to imaging how this could be used to reinforce an existing structure without tearing out the walls and floors to expose the columns and beams, essentially demolishing the building. Of course, in an existing building, concrete has already been around any concrete reinforced steel framing, so this reinforcement scheme is not applicable to use in an existing concrete reinforced structure.



As a further illustration, this figure compares the different types of structures: (a) a reinforced concrete column, (b) a steel reinforced concrete column, and (c) a steel framed and reinforced concrete column according to the Shue patent.

These are all internal structures, used to initially produce the building structure. The adjacent drawing illustrates the applicants' invention, which is a method for reinforcing an existing reinforced concrete building structure.



In Shue, there is no external steel frame having columns and beams that run parallel with the internal concrete reinforced columns and beams, as used with the present invention. Certainly, there is nothing found in Shue to teach or suggest the present invention. Rather, the opposite is true, as Shue suggests that it is important to totally surround a column or beam with reinforcement, while the applicant only reinforces from the exterior facing side of these structures, and this is done while the building remains occupied. As there is no teaching for doing as the applicants have done, new claims 15-21 are not obvious over Shue.

Claim 10 was rejected as being obvious over Shue in view of Geogiev et al, U.S. Patent 3,712,008. Claim 10 has been replaced by new claims 18 and 19.

The deficiencies of Shue are not remedied by Geogiev. Similar to Shue, Geogiev is directed to producing new building structures, not to reinforcing an existing building

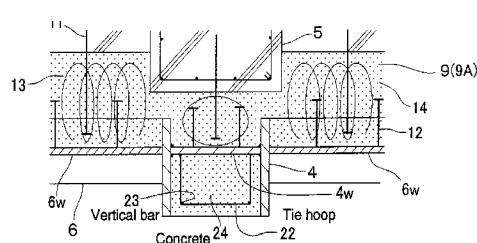


Fig. 2

structure, and there is nothing to teach or suggest the present invention. Further, the tie hoops of the present invention are attached to the web of the H-shaped steel column, as best seen in Fig. 2.

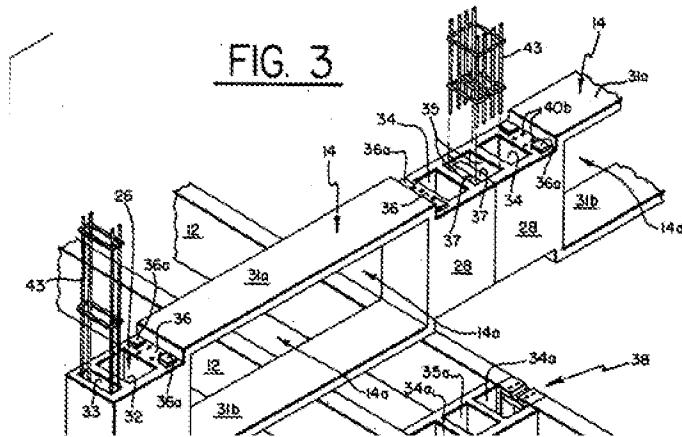


FIG. 3

On the other hand, only columnar reinforcement (43) is shown in Geogiev. Note that this is not fixed to the web, and consequently, it does not meet the limitation of tie hoops in accordance with the claimed

invention. In Geogiev, the reinforcement bundle is only attached to itself, for dropping into an opening. Consequently, the combination of references does not arrive at, teach or suggest the present invention.

Based on the above amendment and remarks, favorable consideration and allowance of the application are respectfully requested. However should the examiner believe that direct contact with the applicant's attorney would advance the prosecution of the application, the examiner is invited to telephone the undersigned at the number given below.

Respectfully submitted,

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